



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,376	09/20/2005	Hiroshi Sawada	JCLA16514	4576
J. C. Patents Suite 250 4 Venture Irvine, CA 92618	7590 04/29/2009		EXAMINER HEINRICH, SAMUEL M	
			ART UNIT 3742	PAPER NUMBER
			MAIL DATE 04/29/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/529,376	SAWADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Samuel M. Heinrich	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 19 December 2008.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-7 and 9-17 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-7 and 9-17 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 28 March 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>9/5/2008</u> .	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP06212451.

JP06212451 describes laser irradiation interference which produces an interference fringe on the surface of a metallic material and describes very fine pitch of one micrometer or less. JP06212451 describes irradiation to produce an interference fringe and describes irradiation with sufficient power to evaporate by the interference fringe. JP06212451 describes producing a diffraction grating, i.e., periodic structure.

Dustproofness and inhibition of particle adhesion, reduction of friction and friction wear, and reduction of wettability are material features which would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art.

Claims 1-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP06198466.

JP06198466 describes laser irradiation wherein beam L and beam La cross and interfere and produces interference fringe on the surface of metallic materials and describe patterning of one micrometer or less. JP06198466 describes the laser sufficient to evaporate by an interference fringe. JP06198466 describes laser beams L and La which cross and interfere and produce a diffraction grating, i.e., periodic structure.

Dustproofness and inhibition of particle adhesion, reduction of friction and friction wear, and reduction of wettability are material features which would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art.

Claims 5 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP06212451 and JP06198466 as applied to claim 1 above, and further in view of JP02085350 or in view of US20020001779A1 to Hidaka et al.

JP02085350 describes (Fig 2) changed direction of surface structure.

Hidaka et al describe [0028] well known exposure can be altered by changing laser parameters such as polarization.

The use thereof in either of JP06212451 or JP06198466 would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art in order to fine tune the exposure.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP06212451 and JP06198466 as applied to claim 1 above, and further in view of USPN 6,031,201 to Amako et al.

Amako et al describe use of beam expanders and cylindrical lenses and the use thereof in either of JP06212451 or JP06198466 would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art in order to control intensity.

Claims 5 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP06212451 and JP06198466 as applied to claim 7 above, and further in view of US20020001779A1 to Hidaka et al in view of USPN 5,812,629 to Clauser.

Hidaka et al describe [0028] well known exposure can be altered by changing laser parameters such as polarization.

Clauser describes (column 60, lines 8-39) forming both in phase and out of phase overlapping fringes.

Forming grating structure of either of JP06212451 and JP06198466 to overlap in different directions would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the process features are known in the prior art.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art pertains to laser formation of periodic structure.

***Response to Arguments***

Applicant's arguments filed December 19, 2008 have been fully considered but they are not persuasive. Applicant argues that JP06-212451 does not disclose "irradiating a uniaxial laser beam near an ablation threshold to a surface of a material" and does not disclose "executing an overlapped scanning... to thereby cause spontaneous formation of a periodic structure". Applicant argues that JP06-198466 does not disclose "irradiating a uniaxial laser beam near an ablation threshold to a surface of a material" and does not disclose "executing an overlapped scanning... to thereby cause spontaneous formation of a periodic structure". These arguments are not convincing. Both JP06-212451 and JP06-198466 describe irradiation to produce an interference fringe and describes irradiation with sufficient power to evaporate by the interference fringe.

In response to applicant's arguments against the secondary references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu B. Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Samuel M Heinrich/  
Primary Examiner, Art Unit 3742